

Atty Docket No. 003587 USA D01/MASK/RT/OR
PATENT APPLICATION

AMENDMENT UNDER 37 C.F.R. § 1.116
U.S. Appl. No. 09/851,779

REMARKS

Claims 27-57 are all the claims pending in the application.

Claims 36-40 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Claims 27-29, 31, 34, 36-40 stand rejected under 35 U.S.C. §103(a) as being unpatentable over USP 4,595,289 to Feldman et al (Feldman). Claims 32-33, 35, 43-50, and 55 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Feldman in view of USP 5,892,579 to Elyasaf et al. Claims 51 and 56 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Feldman in view of Elyasaf and further in view of USP 6,124,924 to Feldman et al. (Feldman '924). Claims 30 and 52-54 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants respectfully traverse these rejections, and request reconsideration and allowance of the claims in view of the following arguments.

1. The §112 Rejection

Claims 36-40 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite. The Examiner has asserted that claim 36 recites the limitation "said first, said second, and said third cameras", but there is insufficient antecedent basis for this limitation in the claim. Applicants respectfully disagree.

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Applicants corrected a typo in claim 36. No new matter has been introduced. Claim 36 depends on claim 29 which recites a first camera, a second camera and a third camera. Thus, Applicants respectfully submit that there is sufficient antecedent basis for said first, said second and said third cameras in claim 36. Accordingly, the §112, second paragraph rejection, to claims 36-40 should be withdrawn.

2. The Line Width Variation

In the Amendment dated October 26, 2004 (the October 2004 Amendment), Applicants argued that Feldman fails to teach or suggest detecting variations in line width of the first die recited in claim 27. The Examiner has argued that Feldman talks about the drawbacks of its prior art, referring to col. 1, lines 59-62, of Feldman (stating that misalignment between the chip patterns may arise from line width variations), talks about the advantages of the Feldman invention, referring to col. 2, lines 11-14, of Feldman (stating that Feldman's object is to provide an improved method and apparatus for inspecting masks used in the fabrication of wafers), and talks about detecting defects by comparing images, referring to col. 4, lines 4-8. The Examiner then concluded that one of such defects is line width. It appears that the Examiner's reasoning is that Feldman's prior art fails to address detecting line width variations, Feldman makes improvements over its prior art, so Feldman addresses detecting line width variations. However, col. 4, lines 4-8, of Feldman, referred to by the Examiner, talk about Feldman's prior art, instead of the invention of Feldman. Thus, the Examiner's reasoning is flawed.

Accordingly, Applicants resubmit that claims 27-40 are patentable.

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3. The Plurality of Aerial Images

The Examiner has agreed that Feldman fails to teach or suggest the plurality of aerial images of the first die and the plurality of aerial images of the second die. However, the Examiner argued that Feldman teaches that the images are acquired by the scanners when the mask is moved with a table in X, Y directions, referring to col. 3, lines 50-55, of Feldman. The Examiner then asserted that Feldman teaches acquiring multiple images of a die in order to fully image the die. Applicants respectfully disagree. Only one photodetector, 32 or 34, is used to image a die. Feldman at most teaches acquiring several partial images of the die and using these partial images to obtain a complete image of the die.

The Examiner has further asserted that one ordinary skilled in the art can obviously consider taking a plurality of images to make sure the entire die is imaged. Applicants do not understand the Examiner's reasoning. Nothing in Feldman indicates that the method used in Feldman for imaging the die is not enough for inspecting the die, or that a plurality of images are necessary to image the entire die.

Thus, Feldman fails to teach or suggest acquiring a plurality of images of the die. No other reference supplies Feldman's deficiency.

Accordingly, Applicants resubmit that claims 27-40 and 43-57 are patentable.

4. The Aerial Images of a Reticule in a Reflected Light

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In the October 2004 Amendment, Applicants argued that Feldman fails to teach acquiring a second plurality of aerial images of the reticle in reflected light, as recited in claim 41. The Examiner has argued that, in Fig. 4 of Feldman, a photo detector 87 is placed vertically above the mask to detect the light reflected from the mask thereby. However, in the dark-field mode of Feldman, only light scattered from illuminated edges of a feature or defect contained within the resolution element of the viewing optics is collected (Feldman, col. 6, lines 8-16). For example, for the pattern shown in Fig. 3 of Feldman, a shorter dark-field edge source is obtained for the left-hand chip pattern and a longer dark-field edge source is obtained for the right-hand chip pattern (Feldman, col. 7, lines 6-10). Thus, what is detected by the photo detector 87 in the dark-field mode of Feldman is not an image of the chip pattern. In the dark-field mode, the photo detector 87 of Feldman only obtains the dark-field edge source of the patterns on the reticle, instead of an aerial image of the reticle.

Elyasaf does not supply Feldman's deficiency.

Accordingly, Applicants resubmit that claims 41 and 42 are patentable.

5. The Numerical Aperture Diaphragm

In the October 2004 Amendment Applicants argued that Feldman fails to teach or suggest the numerical aperture diaphragm recited in claim 43. The Examiner argued that Feldman teaches such a feature, referring to col. 8, lines 35-39, of Feldman. However, the cited part of Feldman only mentions a numerical aperture, not the numerical aperture diaphragm. In addition,

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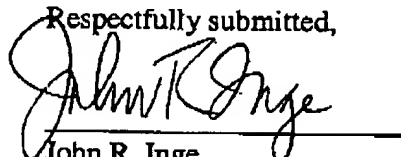
the numerical aperture in the part is used to obtain a resolution of a viewing optics. Feldman does not mention reproducing a set of exposure conditions either.

Accordingly, Applicants resubmit that claims 37 and 43-57 are patentable.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,


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MOUNTAIN VIEW OFFICE

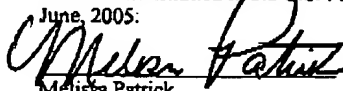
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CUSTOMER NUMBER

Date: June 22, 2005

CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this AMENDMENT UNDER 37 C.F.R. § 1.116 is being facsimile transmitted to the U.S. Patent and Trademark Office this 22nd day of June, 2005:


Melissa Patrick